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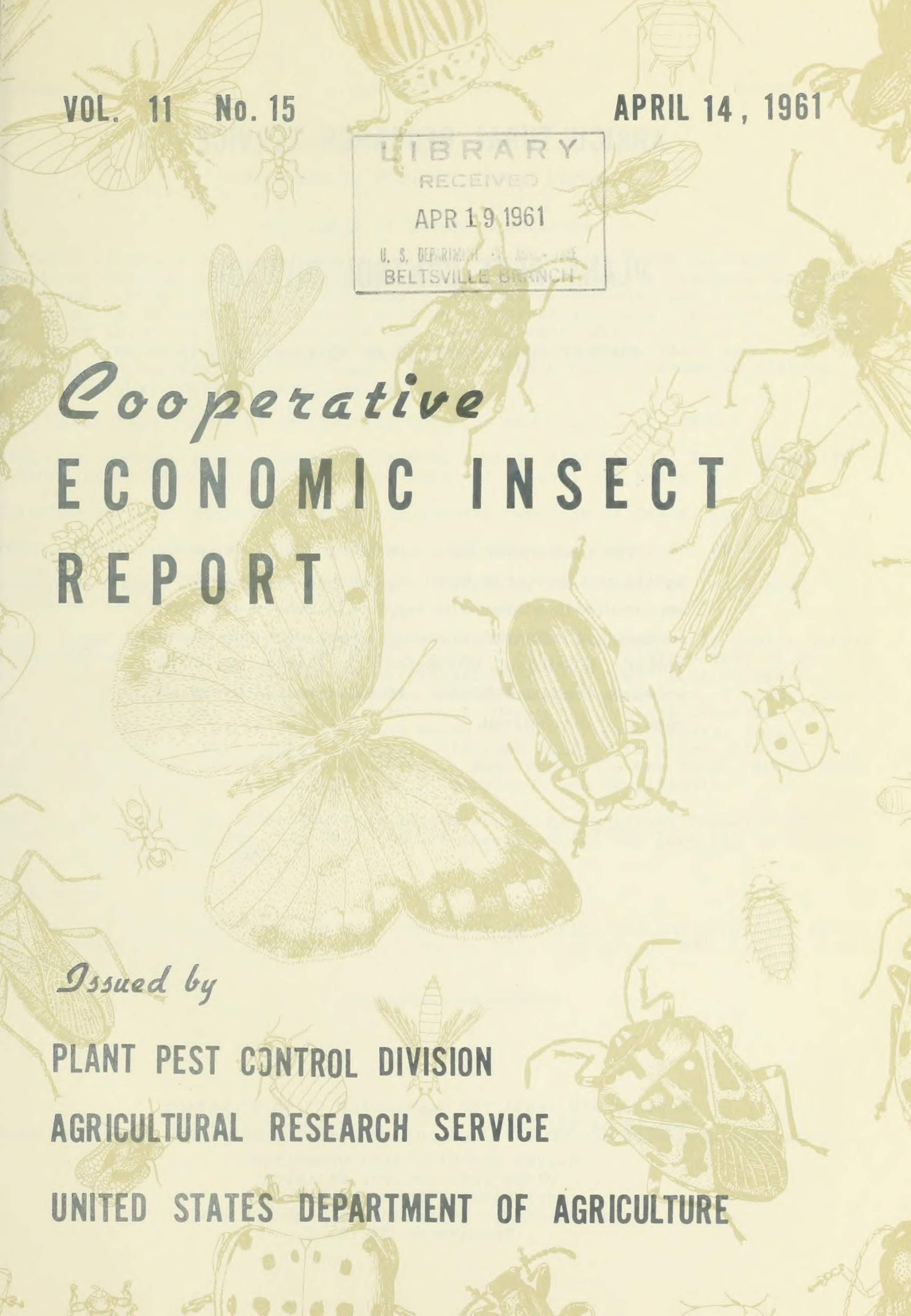

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
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Volume 11 April 14, 1961 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG counts as high as 5,000-6,000 per linear foot in Texas Panhandle counties; Oklahoma problem continues with no apparent decline; numbers increasing in Kansas. ENGLISH GRAIN APHID counts up to several thousand per linear foot in Oklahoma; is the most common grain pest in northwest Arkansas. (p. 287). CHINCH BUG heavy in several Texas counties and damaging small grain locally in Oklahoma. (p. 288). PEA APHID heavy on alfalfa in Arizona, New Mexico, Texas and Oklahoma and increasing in Arkansas. ALFALFA WEEVIL caused damage in Alabama North Carolina, Colorado and Utah. (p. 289).

BEET LEAFHOPPER survey in New Mexico, Colorado and Kansas. (p. 293).

WIREWORMS damaged shade tobacco in Gadsden County, Florida. (p. 293). GRANULATE CUTWORM infestations on shade tobacco heaviest in past six years. (p. 294).

CUTWORMS heavily damaged cotton in all coastal counties of Texas. (p. 294).

TENT CATERPILLARS heavy in local areas of Oklahoma and Texas. (p. 295).

Adults of COMMON CATTLE GRUB annoying to cattle in many areas of Texas and Oklahoma. (p. 296).

Some First Reported Records of the Season: SOUTHERN ARMYWORM early instar larvae appearing on tomatoes in the Ft. Pierce area of Florida. EASTERN TENT CATERPILLAR eggs hatching and young larvae present over Delaware. ALFALFA WEEVIL activity noted in New York March 27-28. CABBAGE LOOPER at Quincy, Florida, on shade tobacco. A FRUIT TREE MITE hatching in Otero and Lincoln Counties, New Mexico. Adult RICE WATER WEEVIL noted March 29 in Jefferson County, Texas. A CUBAN MAY BEETLE (*Phyllophaga bruneri*) collected April 2 in Miami, Florida. LESSER CLOVER LEAF WEEVIL taken March 28 in East Fishkill, New York. ROSY APPLE APHID found April 5 in Washington County, Maryland, and in Illinois.

INSECT DETECTION: Sawflies (*Dolerus tectus* and *D. neoagcistus*) reported for first time from Maryland. (p. 295). A new county record was face fly in Grayson County, Virginia. (p. 296).

CORRECTIONS (p. 298).

SUMMARY OF INSECT CONDITIONS in some countries in Africa and the Near East for 1960. (Tunisia p. 300, Libya p. 303, Sudan p. 305, Ethiopia p. 307, Iran p. 308, Afghanistan p. 310).

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Reports in this issue are for week ending April 7, unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 10

Strong winds, rather widespread this week, whipped up dust on a few days in dry sections of the Great Plains and Far Southwest. On the 4th, high winds in South Dakota, with gusts up to 85 m.p.h. at Pierre, caused dust across the entire State and extensive damage. The week was unusually cold in most areas east of the Rocky Mountains, with generous precipitation, some in the form of snow in middle and northern areas, maintaining adequate to excessive soil moisture from the eastern Great Plains to the Atlantic coast and prolonging overflows along several streams in the Southern States.

East of the Rocky Mountains, the weather during the week was generally cold, cloudy and windy. Temperatures for the week averaged 6° to 9° below normal over the Central Interior and were normal to a few degrees above only in eastern New England. On the 6th and 10th, freezing and frost extended down through the Great Plains over much of Oklahoma, and freezing occurred in the Texas Panhandle on Sunday. Freezing occurred in west-central Louisiana on the 7th, and frost was reported in South Carolina and central Georgia.

In the Far West, average temperatures for the week ranged from 3° below normal in the Pacific Northwest and most of the Rocky Mountain region to 3° to 6° above normal in California and Arizona. Freezing was widespread in the Pacific Northwest the latter half of the period. Minima in the 20's occurred in the fruit districts of eastern Washington on 1 or 2 nights, and spotted damage was reported in the Yakima Valley. Some freeze damage was also reported in Idaho. Precipitation was very light in the Pacific States, Idaho, and Montana, and in the latter State water supplies and soil moisture are critically short in many sections east of the Continental Divide. Beneficial precipitation fell in east-central Nevada, Utah, Colorado, and parts of Wyoming, New Mexico and Arizona. Reports from Nevada indicate that even though storms the past 3 weeks have improved the outlook for runoff, 1961 is still expected to be the poorest water year since 1934.

Snowfall during the week was frequent in northern areas east of the Rockies. Heaviest falls occurred in the central Great Plains on the 8th and 9th, and ranged up to 12 inches in south-central Nebraska and up to 10 inches in northwestern Kansas. Light amounts fell in a wide belt from the central Great Plains to the Great Lakes. Albuquerque, New Mexico, had 4 inches of snow on the ground on the 8th and 2 or more inches during the entire latter half of the week. The snow cover in the upper Great Lakes is nearly all gone. In the Northeast, 3 to 10 inches of new snow were recorded in the higher mountains of West Virginia, Maryland, Pennsylvania and New York at the end of the period. In New England, the cover ranges from 10 to 20 inches in northern Maine and up to 5 inches in the mountains of Massachusetts and Connecticut. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Counts as high as 5,000-6,000 per foot in following panhandle counties: Potter, Randall, Donley, Deaf Smith, Swisher, Briscoe, Carson and Gray. Controls have been quite successful and wheat is looking good. Infestations still scattered in counties along Red River and in the northeast area, with populations ranging light to heavy. Survey in Kerr, Kimble, Gillespie, Blanco and Travis Counties revealed light (up to 100 per foot) infestations on oats and rye. (Daniels, Newton). OKLAHOMA - Overall situation in State appears about same as noted during past few weeks. Spraying continued in most areas, with no apparent decline from preceding week. "Greenbug spots" found in some fields of small grain as far east as Cherokee and Muskogee Counties this week, but most fields appear to be outgrowing effects of aphids in that area. Parasites and predators continue to increase in all areas. (Okla. Coop. Sur.). KANSAS - Counts in small grains in southeastern, south central, southwestern and central districts range from less than 1 to over 500 per foot of row. Areas with highest counts are in Cowley and Clark Counties. Yellow areas appearing in these fields. Insecticides will be applied soon. Counts in fields in other areas averaged less than 15 per foot. (Somsen, Peters). ILLINOIS - None were found this period. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Most common aphid on small grain in northwest; counts 30-75 per 10 sweeps. (Ark. Ins. Sur.). OKLAHOMA - Continued common in fields of small grain throughout State. An increasingly higher percentage of fields surveyed each week contains high numbers; counts ranged from 10 to several thousand per linear foot in fields surveyed. (Okla. Coop. Sur.). KANSAS - Counts in small grains in southern area range from less than 1 to 50 per foot of row. (Peters). MISSOURI - Light infestations were observed in southeast area. Counts on wheat and barley ranged 0-40 per foot of row; averaged 12-20. (Munson, Thomas, Wood). ILLINOIS - Ranged 0-40 per 100 sweeps in southwest. (Ill. Ins. Rpt.). DELAWARE - Present but scarce on cover crops in Kent County. (Burbutis, Mason).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Although commonly found in all grain-producing areas of State, populations continued to vary from field to field within any given area. As in the past month, counts ranged from 10 to several thousand per linear foot in fields of small grain surveyed. (Okla. Coop. Sur.). KANSAS - Observed in few small grain fields in southern area; counts less than 1 per foot. (Peters).

APHIDS - OREGON - Populations of aphid vectors on perennial grasses much lower than at this period in 1960. Winter cereals almost free of overwintering vectors in Willamette Valley. (Dickason, Apr. 1). TEXAS - Medium widespread infestations (averaged 20 per plant) in crested wheat grass in Lynn County (Texas Coop. Rpt., Boren); spotted, widespread infestations attacking grain sorghum, corn and broomcorn in Bee and Live Oak Counties (Texas Coop. Rpt., Edgar).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium, local infestations attacking wheat and oats in Lynn County; light, generally widespread in oats in Kerr, Kimble, Gillespie, Blanco and Travis Counties. (Newton). OKLAHOMA - Light in many fields of small grain surveyed in western half of State. (Okla. Coop. Sur.). KANSAS - Observed in few fields of wheat in Cowley County; averaged 75 per foot of row. (Peters).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Moderate numbers present in dry farm wheat southwest of Salt Lake City. (Knowlton). KANSAS - Counts in wheat in south central and southwestern Kansas range from less than 1 to over 1,000 per foot of row; yellowing evident in heavily infested fields. (Peters).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Surveys made March 28 and April 4 in 15 of 25 central and south central counties showed the following: Most early planted fields in the central and south central areas showing 5-25 percent of plants infested with small colonies; late-planted fields with trace to 5 percent infestation. All old, volunteer plants heavily infested; late volunteer plants infested but colonies not nearly so large. Wheat streak mosaic symptoms showing in some volunteer plants throughout area. (Somsen).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Damaging fields of small grain in Cotton County. (Okla. Coop. Sur.). TEXAS - Counts in Kaufman County wheat average 2 bugs per linear foot. Damage serious to grain sorghum and corn in several south central counties; many stands destroyed and controls have not been entirely satisfactory. (Texas Coop. Rpt., Boren, Newton).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Scattered, severe infestations killing young grain sorghum in several coastal bend counties. (Deer). WYOMING - Very numerous in alfalfa and small grains in Platte and Goshen Counties; 6-8 per square foot. (Fullerton).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Normal numbers in dryland wheat and roadside grasses of Salt Lake County. (Knowlton).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Approximately 3 percent of overwintering larvae have pupated in Sussex County. No pupation observed to date in New Castle and Kent Counties. (Burbutis, Mason).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Fifteen percent of overwintering larvae dead and an added 10 percent estimated to have been killed by predators in 2 fields of corn in Payne County. (Okla. Coop. Sur.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - NORTH CAROLINA - Overwintering forms noted in cornstalks being plowed under this spring. (Harmon, Farrier).

CORN EARWORM (Heliothis zea) - ARKANSAS - Eggs collected April 4 in Hempstead, Sevier and Lafayette Counties; one second-instar larva found in Sevier County. (Ark. Ins. Sur.).

CUTWORMS - TEXAS - Light to heavy populations attacking grain sorghum and corn in several coastal bend counties. (Edgar, Deer).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Average populations per 100 sweeps in bluegrass alongside old fields of corn as follows: East - 3, east-southeast - 15.5, southeast - 65.5 and southwest - 20. (Ill. Ins. Rpt.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Medium to heavy infestations present in central and southwest young corn. Considerable damage evident in some fields. (Ariz. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ARKANSAS - Becoming more common; 2-5 per 10 sweeps in small grain. (Ark. Ins. Sur.).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - TEXAS - First adult emergence noted March 29 in Jefferson County near Beaumont. (Bowling).

SEED-CORN MAGGOT (Hylemya cilicrura) - DELAWARE - Adults fairly common (4 per 10 sweeps) in fields of winter wheat in Sussex and Kent Counties. (Burbutis, Mason).

PEA PHID (*Macrosiphum pisi*) - IDAHO - Populations less than one per 10 sweeps in alfalfa sampled in Canyon County. Populations remain extremely low in Lewiston area, Nez Perce County; becoming more plentiful in alfalfa in Caldwell area, Canyon County. (Walters, Gittins, Bechtolt). ARIZONA - Infestations in alfalfa heavy statewide. (Ariz. Coop. Sur.). NEW MEXICO - Populations continue heavy in alfalfa in Chaves, Eddy, Roosevelt, Sierra, Otero and northern Dona Ana Counties. Also building up very rapidly in Hondo Valley, Lincoln County. (N. M. Coop. Rpt.). TEXAS - Heavy, widespread infestations attacking vetch and alfalfa in Kaufman, Collin, Wilbarger, Hardeman and Grayson Counties; some controls being applied. Light, local infestations in Yoakum and Gaines Counties. (Texas Coop. Rpt.; Davis, Newton, Whitaker). OKLAHOMA - Light to heavy populations (35 to several thousand per sweep) continue to be noted in alfalfa checked in most areas.(Okla. Coop. Sur.). ARKANSAS - Increased rapidly during past 2 weeks. Counts as high as 250 per 10 sweeps common on alfalfa in northwest; counts somewhat lower in vetch. Some fields of alfalfa being treated in southwest. (Ark. Ins. Sur.). KANSAS - Counts range from less than 1 to 100 per sweep in alfalfa in southern area. (Peters). MISSOURI - Counts on alfalfa in southeast area very low (0-10 per sweep) but counts in vetch considerably higher (10-50 per sweep). (Munson, Thomas, Wood). ILLINOIS - Counts 0-10 per sweep; highest numbers found in alfalfa in extreme southern area. (Ill. Ins. Rpt.). MARYLAND - Increasing slightly, but still below economic levels in alfalfa in southern sections. (U. Md., Ent. Dept.). DELAWARE - Present but scarce on alfalfa over State. (Burbutis, Mason).

GRASSHOPPERS - KANSAS - Eggs of *Melanoplus bilituratus* examined in Stanton County showed development in segmented stage. (Fitchett, DePew, Peters). NEBRASKA - General condition of egg development in central area good. *M. bivittatus* and *M. bilituratus* in eye spot to segmentation stage; *M. differentialis* in coagulated stage. Parasitism average or below; no dessication observed. (Bell). WYOMING - Nymphs of *Chortophaga viridifasciata* found in alfalfa fields and along fence rows and ditch banks in Torrington area, Goshen County. (Fullerton).

A MOLE CRICKET (*Scapteriscus vicinus*) - FLORIDA - Abundant at Bradenton and causing damage to lawns; numbers collected in blacklight trap in Highlands County. (Frederic, Hanlon).

A COCCID - CALIFORNIA - *Rhizoecus kondonis* occurred in medium populations on lawn grass roots in Colusa, Colusa County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (*Hypera postica*) - NEW YORK - First adult activity noticed during warm period of March 27-28; 6 adults (males and females) caught March 28 on flight screens in East Fishkill, Dutchess County; one adult taken in sweeps of stubble in an alfalfa field. No larval activity by April 3; no eggs found in female weevils. (N. Y. Wkly. Rpt.). DELAWARE - Averaged one young larva per stem in field of untreated alfalfa in Sussex County; considerably lower in other fields in county. No noticeable increase in most fields in New Castle and Kent Counties. (Burbutis, Mason). MARYLAND - Adult and larval activity slowed down by cool weather in most sections. (U. Md., Ent. Dept.). NORTH CAROLINA - Larvae injuring sweetclover in Rowan County. (Corriher, Farrier). ALABAMA - Severe defoliation of alfalfa in most eastern sections of State. (Grimes). COLORADO - Quite active in Montrose, Delta, Mesa and Garfield Counties. Considerable spraying has been completed on the west slope. (Colo. Ins. Sur.). WYOMING - Adults found in crowns of alfalfa plants, 2-3 inches high. Counts in Platte and Goshen Counties average one per square foot. (Fullerton). UTAH - Controls have been applied to 60 percent of alfalfa acreage in Salt Lake County this spring. Several thousand acres have been treated in Iron County. (Knowlton). NEVADA - Adults active and mating in the Preston-Lund area, White County. (Lauderdale). IDAHO - First-instar larvae noted in several fields in Canyon County. Adults apparently low in number and difficult to find. Present, spotted but in abundant numbers in one field out of 10 checked near Middleton, Canyon County. (Waters, Bechtolt).

CLOVER LEAF WEEVIL (*Hypera punctata*) - DELAWARE - Larvae fairly common in field of alfalfa in New Castle County. (Burbutis, Mason). ILLINOIS - Larvae averaged 11.8 per square foot; ranged 0-38. This is higher than population of past 3 years and about equal to the 7-year average. (Ill. Ins. Rpt.). KANSAS - Larval counts less than one per sweep in Cowley, Stafford and Hamilton Counties. (Somsen, Peters).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Heavy infestations continue in Yuma County alfalfa. In Maricopa County, counts average 10-15 per 20 sweeps in some fields. (Ariz. Coop. Sur.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - NEW YORK - Single adult taken on flight screen March 28 at East Fishkill. (N. Y. Wkly. Rpt., Apr. 3).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - IDAHO - Low adult population in fields of alfalfa sampled in Clearwater River area. Some adult feeding damage noted. Adults active in some alfalfa sampled in Caldwell area, Canyon County. (Bechtolt).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Medium infestations in some Graham County alfalfa. In central and southwestern areas, populations generally very low. (Ariz. Coop. Sur.). NEW MEXICO - Populations remain unusually light in alfalfa throughout State. (N. M. Coop. Rpt.). TEXAS - Light, local infestations attacking alfalfa in Terry, Brazos and Gaines Counties. (Texas Coop. Rpt., Whitaker, Newton). OKLAHOMA - Causing some concern to alfalfa growers in localized areas in southern half of State, particularly in southwest and southeast. (Okla. Coop. Sur.). UTAH - Now active in "Dixie" area of Washington County. (Knowlton).

COWPEA APHID (*Aphis medicaginis*) - OKLAHOMA - Common in terminal growth of many alfalfa plants and seed heads of shepherdspurse in south central, central and north central areas. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - IDAHO - Adults numerous in alfalfa checked in Canyon County; populations average one per 5 sweeps. (Waters). WYOMING - Few adults found in alfalfa in Platte and Goshen Counties. (Fullerton). COLORADO - Becoming active in Mesa, Delta, Montrose, Garfield, Larimer, Weld and Fremont Counties. (Colo. Ins. Sur.). ARIZONA - Counts in central area alfalfa average 20-25 adults and nymphs per 20 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - *L. lineolaris* common in alfalfa surveyed in southern two-thirds of State; counts averaged 0.5-3 per sweep. Limited numbers of same species noted in small grain in most areas of State. (Okla. Coop. Sur.). ARKANSAS - *L. lineolaris* counts have increased considerably. Counts in vetch in northwest average 18-20 per 10 sweeps. Counts in alfalfa in same area, 8-12 per 10 sweeps. (Ark. Ins. Sur.).

LEAFHOPPERS - ALABAMA - Large numbers observed on clovers and grasses in pastures in southern part of Mobile County during last 2 weeks of March. Averaged 35 adults per sweep. (Seibels). WYOMING - *Cuerna* sp. adults numerous on alfalfa in Goshen County; 4-5 per square foot. (Fullerton).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEVADA - Populations continue heavy in several lawns in Reno, Washoe County. (Bechtel). IDAHO - Little evidence of activity in native or seeded grasses in fields checked in Canyon County. (Bechtolt). WYOMING - Found in sagebrush areas in Washakie and Big Horn Counties. (Robb). NEBRASKA - Heavy infestation occurred in Frontier, Furnas, Harlan, Howard and Red Willow Counties. Infestation in Lincoln County averaged 5 per foot, with one field having 10 per foot. (Pruess). KANSAS - Still present in wheat, barley, soil bank and alfalfa fields in south central and southwestern areas. However, in most cases, plants appear to be recovering from damage. Counts range from less than one to 22 larvae per square foot. Larvae range from fourth to seventh instar, with most in sixth and seventh instars. (DePew, Fitchett, Somsen, Peters).

OKLAHOMA - A cutworm (probably this species) reported damaging a variety of crops in localized areas of Alfalfa County. (Okla. Coop. Sur.). NEW MEXICO - Light to heavy on about 2,000 acres of alfalfa in De Baca County. (N. M. Coop. Rpt.).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Few small larvae observed in alfalfa in southeast area. (Munson, Thomas, Wood).

BOLLWORM (Heliothis zea) - TEXAS - Heavy, local infestations in flax in Jim Wells County. (Texas Coop. Rpt., Jones).

FRUIT INSECTS

APPLE APHID (Aphis pomi) - MARYLAND - Becoming more numerous on opening buds of apples in Hancock area. (U. Md., Ent. Dept.). ILLINOIS - Found April 5, but generally in low numbers, in Carbondale area; young already produced. (Meyer).

ROSY APPLE APHID (Anuraphis rosea) - MARYLAND - First hatch of the season occurred April 5, at Hancock, Washington County. (U. Md., Ent. Dept.). ILLINOIS - Found April 5, but generally in low numbers, in Carbondale area. (Meyer).

GREEN PEACH APHID (Myzus persicae) - COLORADO - The main hatch of eggs occurring on peach trees in Mesa, Delta, Montrose and Garfield Counties. Egg hatch has started in Larimer and Weld Counties. (Colo. Ins. Sur.).

A SCALE INSECT (Lecanium sp.) - NORTH CAROLINA - Infesting and causing death of plum trees locally in Cumberland County. (Jones, Farrier).

THRIPS - OREGON - Taeniothrips inconsequens reached peak of emergence in Willamette Valley week of March 26. Populations appear to be below normal. (Jones, Apr. 1). ARIZONA - Frankliniella occidentalis very heavy on apple trees in Graham County. (Ariz. Coop. Sur.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - Egg masses found in several orchards April 5. Populations expected to be higher this year than during 1960. (Meyer)

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Adults depositing eggs in peaches recently exposed from the shucks, at Ft. Valley; these eggs may result in "wormy" peach drops later in April. (Snapp).

A FRUIT TREE MITE (Bryobia rubrioculus) - NEW MEXICO - Eggs beginning to hatch on fruit trees in Otero and Lincoln Counties. Larvae very abundant and causing minor damage to young foliage. (N. M. Coop. Rpt.).

MITES - ILLINOIS - Panonychus ulmi eggs not hatching, but populations are variable as usual in the Carbondale area. Predation was very high last fall in some orchards when winter eggs were deposited. Winter survival of Tetranychus telarius and T. canadensis was unusually high. (Meyer).

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 percent of groves (norm 59 percent); 45 percent economic (norm 34 percent). Rapid increase in activity underway. Infestations have reached high range in most districts and are the highest for this time of year in 10 years of record. Highest districts are Bartow, Ridge, west coast, Brooksville, Indian River, Orlando and upper east coast. CITRUS RED MITE (Panonychus citri) infested 49 percent of groves (norm 71 percent); 23 percent economic (norm 45 percent). Infestations during March were less numerous and less severe than at any time in past 10 years. Little statewide increase expected in April but few groves will develop heavy populations. Highest districts are upper east coast, Brooksville, Bartow, west coast and Orlando. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 23 percent of groves; 7 percent economic. Current low level of infestation will continue through April. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) infested 4 percent of groves; 1.6 percent economic. No trouble is expected. FLORIDA RED SCALE (*Chrysomphalus aonidum*) infested 53 percent of groves (norm 48 percent); 6 percent economic (norm 8 percent). Situation average for this date. Gradual buildup will occur as hatching increases and crawlers move out to spring growth. Highest districts are Indian River and Bartow. PURPLE SCALE (*Lepidosaphes beckii*) infested 82 percent of groves; 9 percent economic. Infestations will increase slightly. Highest districts are Ridge, Orlando and Indian River. CHAFF SCALE (*Parlatoria pergandii*) infested 73 percent of groves; 1.5 economic. This scale is more prevalent than in past 10 years and may be injurious to fruit later in the year. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

Citrus Insect Forecast in Florida - April through June - CITRUS RUST MITE will quickly infest new leaves and fruit in all areas; population will be above average. CITRUS RED MITE population will be low and infestations will be spotty until May. A marked increase to average abundance is expected in early June. TEXAS CITRUS MITE population will gradually increase in May and reach a peak late in June when about 20 percent of groves will have moderate to heavy infestations. Considerable increase of FLORIDA RED SCALE will occur in April, with population reaching high range in June. Low populations of PURPLE SCALE will be common in all areas. Economic infestations may increase during May and June in scattered groves where spray program has disrupted natural control. Population of BLACK SCALE (*Saissetia oleae*) will increase in May and June and generally will be above normal. Populations of APHIDS and SIX-SPOTTED MITE will be low. MEALYBUGS may be troublesome on young fruit in scattered groves during May and June. (Simanton).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Infestations are increasing in Maricopa County citrus, with counts of 60-90 thrips per 5 terminals common in untreated groves. (Ariz. Coop. Sur.).

A CASEBEARER - GEORGIA - Light infestations on pecans in Ware, Berrien and Crisp Counties. Feeding on leaves and causing light defoliation. (Johnson).

TRUCK CROP INSECTS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Infestations averaged 6-8 per leaf on untreated potatoes in Maricopa County. Heavy infestations present in the terminal growth of safflower in the central part of the State. (Ariz. Coop. Rpt.).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - GEORGIA - Moderate infestation on potatoes in Wayne County. (Hutcheson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - ALABAMA - A severe riddling of foliage of collards, turnips and potatoes at Theodore, Mobile County, March 21. The potato crop seriously damaged by the feeding of this species. (Seibels).

SOUTHERN ARMYWORM (*Prodenia eridania*) - FLORIDA - Early instar larvae now appearing on unsprayed tomatoes in Ft. Pierce area. (Hayslip).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - GEORGIA - Moderate infestations on beans in Wayne and Colquitt Counties. (Hutcheson).

BEET LEAFHOPPER (*Circulifer tenellus*) - IDAHO - Numerous in Parma area, Canyon County; up to 20 adults per square foot estimated to be present on wasteland and roadside mustard plants. (Waters).

Beet Leafhopper Survey in New Mexico, Colorado and Kansas - Spring - 1961 - Survey made during period March 8-11 in southeastern and southern New Mexico revealed host plants to be present in 90 percent of locations checked. Although host plants were abundant and widespread, leafhopper populations were lower than in 1960. The average population in the spring of 1961 was 0.13 per square foot, as compared with 0.15 per square foot in 1960. Beet leafhoppers were found to be more abundant in the farm areas of Clovis and Hobbs in the southeastern part of the State and the Las Cruces area in the southern section. The survey in the Arkansas Valley in southeastern Colorado was made March 21-23. Host plants were present in all locations checked. Although host plants were more abundant and widespread than in 1960, plant conditions were not favorable for leafhoppers. The average leafhopper population in the spring of 1961 was 0.08 per square foot, as compared with 0.13 per square foot in the spring of 1960. The species was more abundant in the farm areas between Lamar and Fowles. (D. M. Hardy). No beet leafhoppers were found during spring survey in Kansas. The principal host plant present was tansymustard and the condition was usually good, sometimes luxuriant. (D. J. Fitchett).

APHIDS - NEW JERSEY - Activity still very low on strawberry. A few observed on spinach in Burlington County. (Ins.-Dis. Newsl.). SOUTH CAROLINA - Aphids on cabbage, collards and turnips very numerous in Clemson area. (McAlister). ARIZONA - Probably Anuraphis tulipae occurred as medium infestation of crown growth of carrots in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Increasing in Holmstead and Ft. Pierce areas. (Wolfenbarger, Hayslip).

CABBAGE WEBWORM (Hellula rogatalis) - FLORIDA - Scattered infestations on crucifers in the Ft. Pierce area. (Hayslip).

DIAMONDBACK MOTH (Plutella maculipennis) - FLORIDA - Larval population lower on unsprayed crucifers in Ft. Pierce area than the previous week. (Hayslip).

A SERPENTINE LEAF MINER - FLORIDA - Continues low in most southern areas. Occasional complaints in the Belle Glade area. (Genung).

MITES - CALIFORNIA - Heavy adult populations of Acarus siro and Rhizoglyphus echinopus on roots of garlic in Eureka, Humboldt County. (Cal. Coop. Rpt.).

GRAIN THRIPS (Limothrips cerealium) - OREGON - Thrips collected on hops at Corvallis during the fall of 1960 have been determined as above species. Det. K. O'Neill. (Morrison, Apr. 1).

TOBACCO INSECTS

WIREWORMS - FLORIDA - Conoderus lividus is generally distributed in Gadsden County on shade tobacco. A 7-acre shade sustained a 30-percent loss and three other shades averaged 3 percent loss. Heaviest infestation observed in northeast area, near Georgia State line. Control applied in one instance. (Telone). GEORGIA - Heavy infestation of an unspecified species on tobacco in a 5-acre field in Grady County. (Galbreath, Mar. 30).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco in the field in Toombs, Tattnall, Wayne, Ware, Berrien, Lanier, Cook, Tift and Crisp Counties. (Johnson).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - First infestation for the year at Quincy on shade tobacco. (Tappan).

GRANULATE CUTWORM (*Feltia subterranea*) - FLORIDA - Worst infestation of shade tobacco in the past 6 years. General over Gadsden County, with estimated 3-4 percent loss of entire crop; a 15-percent loss in one shade of 100 acres. (Tappan).

TOBACCO BUDWORM (*Heliothis virescens*) - GEORGIA - Light on tobacco in Ware, Berrien, Lanier, Cook, Colquitt, Tift and Crisp Counties. (Johnson).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Low to fairly high populations appearing in fields of seedling cotton in Cameron County. (Deer, Day, Kachtick, Kloepping).

COTTON FLEAHOPPER (*Psallus seriatus*) - TEXAS - Infestations of 2-5 percent occurring in Cameron County. (Kloepping, Day, Kachtick, Hindman, Stephens).

COTTON APHID (*Aphis gossypii*) - TEXAS - Light in most areas to date. (Deer, Kloepping, Day, Kachtick).

CUTWORMS - TEXAS - Heavy populations causing damage in all coastal counties from Kleberg to Calhoun and into Bee and Live Oak Counties. (Deer, Edgar).

FALSE CHINCH BUGS (*Nysius* spp.) - TEXAS - Killing some young cotton in several coastal bend counties. (Deer).

SPIDER MITES - TEXAS - Unspecified species beginning to reach damaging numbers in some Rio Grande Valley areas. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - DELAWARE - High winter survival noted in loblolly and Virginia pines in southeast portion of Sussex County. Adults fairly numerous under bark of most trees examined. (Bray).

AN IPS BEETLE (Ips sp.) - CALIFORNIA - Damage increasing in ponderosa pine in the Plumas National Forest. The Burnt Bridge, McCabe Creek, South Fork Feather River and Lava Top areas comprising over 2,000 acres of timber now showing damage. (E. E. Murphy).

FIR ENGRAVER (Scolytus ventralis) - CALIFORNIA - Damaging 1,800 acres of white fir Christmas tree stock in the Pierce Meadow, Tulare County. (Wm. Haley).

A REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Ponderosa pine was severely damaged in the Bull Meadow and Corral Creek areas, Stanislaus National Forest. Up to 200 trees killed in groups of 6 or more in small acreages. This weevil seems to be more aggressive this year. (R. A. Gilkey).

PALES WEEVIL (Hylobius pales) - VIRGINIA - Believed to be eating the bark off roots of pine seedlings in a loblolly pine stand in Lunenburg County. Det. R. E. Warner. (Gill).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW YORK - Adults expected to emerge during April and begin egg laying the latter part of the month. (N. Y. Wkly. Rpt., April 3).

A PINE SAWFLY (Neodiprion sp.) - VIRGINIA - Medium spotted infestation of second and third-instar larvae along Colonial Parkway between Williamsburg and Yorktown. (Russell).

SAWFLIES (Dolerus spp.) - MARYLAND - D. tectus females were collected from shrubs and trees March 26 at Baltimore, and a female of D. neoagcistus was collected from spruce, March 29, at Mt. Airy. Both are new records for the State. Det. by B. D. Burks. (U. Md., Ent. Dept.).

PINE TIP MOTHS (Rhyacionia spp.) - MISSOURI - Small pine trees in the Big Springs Park area had 10-15 percent of the branch tips infested. Insect is in the pupal stage. (Munson, Thomas, Wood).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Eggs hatching and young larvae now present in all counties. (Kelsey, Burbutis). OKLAHOMA - Heavy populations of larvae on a variety of trees in the southeast area. Some pupation noted in that area. Light in the east central area. (Okla. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Heavy, widespread infestations attacking oak trees in Hays County. (Texas Coop. Rpt., Massey).

CANKERWORMS - WISCONSIN - Both Alsophila pometaria and Paleacrita vernata were observed on warmer days of the week ending April 7. (Smith).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Occurring as a medium infestation in Chinese elm in El Cajon, San Diego County. Becoming a serious problem in Sacramento, Sacramento County, and locally in the North. Many large elms destroyed this past year due to beetle attack. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Survived in moderate numbers in Salt Lake County. (Knowlton). OKLAHOMA - Medium to heavy infestations of first-generation larvae noted on new foliage of elms in Comanche County. (Okla. Coop. Sur.).

EUROPEAN ELM SCALE (*Gossyparia spuria*) - UTAH - Abundant on numerous elms in Salt Lake City-Midvale area of Salt Lake County; some trees dead due to this pest. (Knowlton). KANSAS - Cocoons on American elm in which males overwinter are present in very large numbers in Ford, Decatur, Barton and Ellis Counties. Males usually much fewer in numbers than females. (Thompson).

COCCIDS - CALIFORNIA - *Pseudococcus microcirculus* occurred in heavy populations on orchids in a nursery in Riverside, Riverside County. Heavy populations of *Icerya purchasi* on miscellaneous trees and shrubs in Clovis, Fresno County. *Selenaspidus albus* heavy on *Euphorbia* spp. in a nursery property in Glendale, Los Angeles County. (Cal. Coop. Rpt.). IDAHO - Crawlers of *Lecanium corni* active on *Caragana* at Moscow and on sumac in the Clearwater River Valley. (Gittins). TEXAS - Heavy local infestations of *Protopulvinaria pyriformis* on avocado trees on two properties in Brownsville. (Texas Coop. Rpt., Day).

APHIDS - CALIFORNIA - Medium infestation of *Myzocallis arundinariae* on bamboo in Oroville, Butte County. (Cal. Coop. Rpt.). OREGON - *Cinara* sp. was extremely abundant on juniper in a Portland nursery March 28. (Nicolaison). IDAHO - Various species becoming fairly numerous on roses in Twin Falls. (Evans). OKLAHOMA - Several species medium to heavy on arborvitae, rose, iris and pine; and light to medium on chrysanthemum, tulip, pampasgrass, and lantana in many areas of the State. (Okla. Coop. Sur.). MISSOURI - Small colonies of aphids were located in the terminals of seedling pines in the Big Springs Park area (southeast). (Munson, Thomas, Wood).

A MITE (*Aculus ligustri*) - CALIFORNIA - Medium infestation occurring on privet in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

WEBWORMS - TEXAS - Widespread, medium infestations of unspecified species attacking ornamental plants in Bee and Live Oak Counties. (Texas Coop. Rpt., Edgar).

BANDED GREENHOUSE THRIPS (*Hercinothrips femoralis*) - CALIFORNIA - Heavy populations occurring on *Philodendron* sp. in a nursery in Santa Monica, Los Angeles County. (Cal. Coop. Rpt.).

ALDER FLEA BEETLE (*Altica ambiens*) - CALIFORNIA - Heavy populations of adults occurring on rose in French Gulch, Shasta County. (Cal. Coop. Rpt.).

HOLLY LEAF MINERS (*Phytomyza* spp.) - DELAWARE - Last generation infestations of *P. ilicicola* in American holly during previous season rather light in most areas. Pupae overwintered but no adult emergence noted to April 7. Infestations by a new species of *Phytomyza* in American holly very heavy in many areas of State. This species overwintered as half-grown larvae in small rather inconspicuous mines. Larval development continued through March and by April 6 most of them were pupae in large blotch mines. No adult emergence noted to April 7. (Kelsey, Burbutis).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (*Hypoderma* spp.) - UTAH - Numerous in backs of cattle in Weber, Box Elder, Davis and Tooele Counties. (Knowlton). NEVADA - Only 2 larvae of *Hypoderma* sp. found in 196 animals on a ranch near Winnemucca, Humboldt County. (Lauderdale). OKLAHOMA - Adults of *H. lineatum* active and annoying cattle in most areas of State. (Okla. Coop. Sur.). TEXAS - *H. lineatum* adults causing considerable nuisance to cattle in central and north central areas. (Newton).

FACE FLY (*Musca autumnalis*) - NEBRASKA - Specimens sent in from Pierce County for identification. This is the most western occurrence known in the State. (Bergman). VIRGINIA - Collected from Independence, Grayson County. This is a new county record. (Tarpley, Simpson).

HORN FLY (Haematobia irritans) - OKLAHOMA - Light numbers noted on cattle in the southeast and east central areas. Counts averaged 20 per animal on mature cows checked in Pushmataha County and 10 per animal checked in Muskogee and Cherokee Counties. (Okla. Coop. Sur.). TEXAS - Up to 50 per animal on cattle in Brown and Callahan Counties. (Newton).

LICE - OKLAHOMA - Medium to heavy populations of cattle lice continued to infest cattle in many herds throughout the eastern half of the State but some decrease in the number of severe cases was evident. (Okla. Coop. Sur.). TEXAS - Light to heavy widespread infestations on cattle, hogs and horses in large areas of south central section. Controls applied by many ranchers. (Texas Coop. Rpt., Edgar).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Medium to heavy infestations on cattle commonly reported throughout the eastern third of the State. Counts averaged 10 per animal on mature cows checked in Pushmataha County. Medium to heavy infestations on a limited number of farm dogs checked in the east central area. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - NEW MEXICO - Majority of sheep being sheared in Lincoln County infested. Most flocks have light to moderately heavy infestations. (N. M. Coop. Rpt). UTAH - Numerous in Salt Lake, Cache and Tooele County farm flocks. (Knowlton).

TABANIDS (Tabanus spp.) - TEXAS - Heavy, widespread infestations causing great annoyance to cattle in Freestone County. (Wells, Turney).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - All specimens sent in for identification during March have been returned negative. (N. M. Coop. Rpt.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - SOUTH DAKOTA - Found to be a problem in a home in Brookings County this week. (Mast).

RED FLOUR BEETLE (Tribolium castaneum) - ALABAMA - Heavy infestation reported in cotton seed in Tallapoosa County. (Barwood).

CARPET BEETLE (Anthrenus scrophulariae) - ALABAMA - Light infestation on corn meal in a warehouse at the Alabama State Docks. This corn meal was being shipped to Ghana and other places overseas. (Grimes).

BENEFICIAL INSECTS

Beneficial Insects in Texas - Nabids, lady beetles, hymenopterous parasites and lacewings slowly increasing in numbers in small grain and alfalfa, but populations are still too low for much benefit. (Newton).

LADY BEETLES - OKLAHOMA - Larvae and adults common (up to 8-10 per linear foot in some spots in fields checked, generally averaging 1-2 per linear foot) in fields of small grain; common in arborvitae and pines infested with aphids in most areas checked. (Okla. Coop. Sur.). ARKANSAS - Very scarce in the northwest. Only an occasional specimen of Chilocorus stigma was found in legumes and small grain. (Ark. Ins. Sur.). UTAH - Becoming more common in fields and orchards. (Knowlton). IDAHO - Various species were becoming quite numerous in the Twin Falls area. (Evans).

NABIDS - KANSAS - Undetermined species low in southern area. Counts less than 1 per foot of row in small grains and less than 1 per sweep in alfalfa. (Somsen, Peters). ARKANSAS - Nabis spp. common in legumes and small grain. (Ark. Ins. Sur.). WYOMING - A few adults of Nabis sp. found in alfalfa fields in Platte and Goshen Counties. (Fullerton).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Adults common in alfalfa and some small grain fields checked in southern half of State. Common on ornamentals in many areas. (Okla. Coop. Sur.).

A PARASITE (Aphidius testaceipes) - OKLAHOMA - Populations continue to increase throughout the State in fields of small grain infested with aphids. Counts indicated that 5 percent or more of the aphid populations have been parasitized in many fields. (Okla. Coop. Sur.).

MISCELLANEOUS INSECTS

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Heavy infestations a problem around homes in northern part of State, particularly in Page area of Coconino County and in Phoenix area. (Roney). NEVADA - Large numbers invading homes in Reno-Sparks, Washoe County. (Bechtel, Lauderdale). UTAH - Invading many homes in Salt Lake and Davis Counties. (Knowlton). NORTH DAKOTA - Entering several homes in Fargo. (Goodfellow). DELAWARE - Several heavy infestations occurred in homes in New Castle County. (Burbutis, Mason).

A BEE MITE (Acarapis dorsalis) - NEBRASKA - Found during past winter inhabiting external areas of honey bees collected in Lancaster County. This is first report of this mite in the State. (Walstrom).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Collected in blacklight trap in Miami area for the first time this year. This is about 3 weeks earlier than last year. (Briggs).

TERMITES - DELAWARE - Spring flights of undetermined species continue very numerous. (Burbutis, Mason). MARYLAND - Winged forms of Reticulitermes flavipes noted in and around several homes in Baltimore. (U. Md., Ent. Dept.).

CASEMAKING CLOTHES MOTH (Tinea pellionella) - NORTH DAKOTA - Severely damaged rolled carpeting stored in a Fargo home. (Post).

A STINK BUG - TEXAS - Heavy scattered infestations in flax in Jim Wells County. (Texas Coop. Rpt., Jones).

COCKROACHES - UTAH - Blattella germanica encountered less frequently, but Blatta orientalis and Supella supellectilium are more frequently encountered than ten years ago. Periplaneta americana is a problem occasionally. (Knowlton).

EARWIGS - UTAH - Encountered in home gardens in Salt Lake and Weber Counties. (Knowlton). NEVADA - Adults of Forficula auricularia active in Reno, Washoe County. (Bechtel).

CORRECTIONS

CEIR 11(1): 10 - STATE CLEARING OFFICES - Under Delaware, change title from Chairman to Head. Under Florida, change title from Plant Commissioner to Director.

CEIR 11(13): 223 - Under CORN LEAF APHID - ARIZONA - Delete ... also heavy on safflower in same county. This statement should read: Myzus persicae heavy on safflower in same county. (Ariz. Coop. Sur.).

CEIR 11(13): 247 - Third line from end of third paragraph should read Culiseta melanura was also collected but in light numbers.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Hel. zea	Proto. quinq.
ARIZONA							
Mesa 3/27-4/2				6		3	
ARKANSAS							
Hope 3/30-4/5	27	28		33		2	
Morrilton 3/30-4/5	11	13					
Kelso 3/30-4/5				12			
FLORIDA							
Quincy 3/3-3/29		4				3	
MISSISSIPPI							
*Stoneville 3/31-4/6	78	3		68			
SOUTH CAROLINA							
Charleston 4/3-4/9	2	4	6	1	1		
Clemson 3/26-3/31	1			3	5		
Clemson 4/1-4/7	3		1	5	1		
TENNESSEE (Counties)							
Monroe 3/20-4/3	8	2		2			
Madison 3/20-4/3	13			18			
Maury 3/20-4/3	87			31			
Robertson 3/20-4/3	11			7			
Cumberland 3/20-4/3	8	4		3			
Greene 3/20-4/3	3	2		2			
Blount 3/20-4/3	1	1					
Johnson 3/20-4/3		1					
TEXAS							
Brownsville 3/25-3/31	41	38	27	25		50	3
Waco 4/2-4/7			6	8	1	2	
WISCONSIN							
Middleton 3/2-4/5	3						

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* Two traps - Stoneville.

SUMMARY OF INSECT CONDITIONS IN SOME COUNTRIES OF AFRICA AND THE NEAR EAST

1960

The summaries of insect conditions that follow have been submitted in the 1960 Annual Report of the Regional Insect Control Project, with headquarters in Beirut, Lebanon. The first attempt to present information on the more important insect pests of the Near East in the Cooperative Economic Insect Report was made in 1955 following a request from the survey committee of the Entomological Society of America. For the benefit of CEIR readers, it may be well to point out that the Regional Insect Control Project is a cooperative program operated by the Plant Pest Control Division, ARS, in accordance with an agreement signed on February 18, 1954, between the U. S. Department of Agriculture and the International Cooperation Administration. At the present time a staff of 9 entomologists are stationed in 7 countries working with the personnel of the U. S. Operations Missions and Ministries of Agriculture.

The work of these entomologists is designed to fulfill commitments to the host countries, with respect to the evaluation of locust problems, the demonstration of control practices, development of insect surveys and the training of nationals in methods, procedures and the organization of applied entomology and plant quarantine work. During the last few years the Ministries of Agriculture have strengthened their Plant Protection organizations. Special attention has been given to survey and plant quarantines. Consequently an increased effort has been made to collect, identify and record insect species of economic importance. First-hand information on foreign pests should serve to familiarize the entomologist and the pesticide industry of this country with the major pests in the areas reported on. It should lead to better understanding and mutual interest in entomological problems common to the United States and other nations. (E. J. Hambleton).

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Summary of Insect Conditions in Tunisia

Prepared by J. W. Gentry

Cereal and Forage Insects: The 1960 DESERT LOCUST (*Schistocerca gregaria*) infestations were the worst since 1957. Heavy invasions started in the southeast area of the country in November 1959 and in the southwest in January 1960. Control was carried out by 2 aircraft groups and 12 ground groups. Application by aircraft amounted to over 14,000 acres. Control operations were completed by July. At the end of the year there were no known economic infestations of locusts in Tunisia. DURRA STALK BORER (*Sesamia cretica*) infestations were light, under 5 percent, in corn in Cap Bon area in June. HESSIAN FLY (*Phytophaga destructor*) was a problem on wheat in some areas with infestations estimated as high as 30 to 40 percent.

Citrus Insects: MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) is the most important pest of oranges in Tunisia. Over one-half of the 80,000-ton 1960 crop was exported and much attention was devoted to control of the pest. Through assistance of the Regional Insect Control Project, malathion bait spray was applied on a demonstrational basis by aircraft to over 2,200 acres. This resulted in 98 percent control in areas checked compared with 20 to 30 percent punctured fruit in untreated orchards. It is of interest that infestation rating and export-market reaction in Tunisia is based on apparent "stings", not on actually infested fruit. Larval development in commercial oranges is uncommon, except in preferred clementine and mandarin varieties. BLACK CITRUS APHID (*Toxoptera aurantii*) (Det. L. M. Russell) was heavy on citrus in some orchards near Tunis in the spring. CITRUS BUD MITE (*Aceria sheldoni*) is one of the few citrus pests receiving major control attention in Tunisia. Stunting and malformation of new growth and fruit were particularly noticeable in lemon plantings in 1960. Damage was also prominent on young lemon trees in nurseries. Observations in Nabeul, Hammamet, Mornag and Tunis citrus areas showed heavy infestations of BLACK PARLATORIA SCALE (Parlatoria zizyphus) and DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) in crowded untreated orchards. These two species were the dominant scale insects in orchards examined, although PURPLE SCALE (Lepidosaphes beckii) was also observed. (Above scale insects determined by H. Morrison). Some scale insect infestations caused chlorosis and subsequent loss of fruit and foliage. It is of interest that well-spaced and well-cultivated orchards in these same areas, although untreated, often had no economic infestations. In some such cases, the absence of coccids was attributed to effective biological control. The identity of citrus scales is unsettled among Tunisian entomologists; therefore, special attention will be devoted to this problem in 1961.

Olive Insects: An OLIVE BORER (Hylesinus oleiperda) severely damaged the branches of trees in young olive orchards. This pest is so important to olive culture in Tunisia that large-scale aerial control will be initiated in 1961. OLIVE FRUIT FLY (Dacus oleae) damage was prevalent in olives examined in the Tunis area; however, no assessment of loss was available.

Deciduous Fruit Pests: SNAILS (Theba pisana and possibly other species) were heavy in young peach orchards at Gabes and in young pears, apples and olives in the Tunis area. Observations in June showed these pests were congregated as thickly as possible on the stems, yet they caused no apparent damage to the foliage. MEDITERRANEAN FRUIT FLY was heavy in untreated peaches and plums at Sidi-Tabet in June. ALMOND BUG (Monosteira unicostata) (Det. P. D. Ashlock) lightly infested almonds at this location in June, but was very heavy on pears examined in Sfax area at that time. CODLING MOTH (Carpocapsa pomonella) was one of the outstanding pests in pome fruit orchards. Crowded plantings and unthinned fruit promoted infestations of this pest. Infested fruit ran as high as 50 percent in some apple and pear orchards at Rades in May. Damage by NEMATODES was so severe in some young stone fruit plantings that recommendations were made to destroy the trees.

Insects Affecting Nurseries and Ornamentals: Inspection of some large nurseries in the Tunis area showed these establishments to be remarkably free of insects and diseases. In one fruit tree nursery, APHIDS were reported as the worst insect problem during 1960. CITRUS BUD MITE damage was evident in lemon stock. PINE PROCESSIONARY MOTH (Thaumatopea pityocampa) was the most prominent insect pest of ornamental pines during December. Feeding and webs were prominent.

Note: This report is based on limited personal observations and on information furnished by the following cooperators: M. Krifa, H. Kaouil, J. Touzeau, J. Evans, A. Melis and A. Belhadj.

Insect Pests Identified From Tunisia 1959-1960 By USDA and USNM Taxonomists

Specimens submitted by E. R. Millet

Pests	Host	Location	Determined by
Tetranychus cinnabarinus (Bois.)	Lemon	Hammamet	Baker
Anarsia lineatella Zell.	Peach	Sidi-Tabet	Capps
Capparimyia savastani Mart.	Capers	Tunis	Foote
Epilachna chrysomelina (F.)	--	Tunis	Chapin
Carpocapsa pomonella (L.)	Apple	Tunis	Capps
Hylesinus oleiperda (F.)	Olive	Sidi-Tabet	Anderson
Gryllotalpa gryllotalpa (L.)	Nursery plants	Thibar	Gurney
Sesamia cretica (Led.)	Corn	Tunis	Capps
Gibbium psylloides (Czemp.)	In house	Tunis	Spilman
Lepidosaphes beckii (Newm.)	Lemon	Cap Bon	Morrison
Saissetia oleae (Bern.)	Citrus, olive	Cap Bon	Morrison
Anuraphis rosea Baker	Pear, apple	LeSers	Russell
Aceria sheldoni (Ewing)	Lemon, orange	Hammamet	Baker
Myzus persicae (Sulz.)	Peach	Sidi-bou-Rouis	Russell
Euphyllura olivana (Costa)	Olive	Sidi-bou-Rouis	Russell
Zeuzera pyrina (L.)	Apple, pear	Rades	Capps
Macrosiphum rosae (L.)	Rose	Thibar	Russell
Toxoptera aurantii (Fonsc.)	Orange	Tunis	Russell
Monosteira unicostata (M.&R.)	Almond, pear	Sidi-bou-Rouis Sfax	Drake, Ashlock
Culiseta longiareolota (Macq.)	Irrigation ditch	Hammamet	Stone
Beneficial Insects			
Opius concolor Szep.	*Dacus oleae* (?)	Tunis	Muesebeck
Coccinella septempunctata L.	--	Tunis	Chapin

Summary of Insect Conditions in Libya

Prepared by G. E. Cavin

Cereal and Forage Insects: Swarms of DESERT LOCUST (Schistocerca gregaria), moving up through the Fezzan in late 1959, laid eggs over a wide area along the coastal plain of Tripolitania and the hill country just south of the coast. Some swarms invaded the coastal cropland but timely control measures prevented appreciable damage. Extensive control operations in April, May and June on bands of marching nymphs prevented any major escapes to the southern breeding area. Slight damage to crops occurred in the Misurata-Zleiten area when nymphs marched into the edge of cropland on a 40-mile front. In mid-July, mixed swarms invaded the Fezzan, from the east, but caused only minor damage. APHIDS (Rhopalosiphum padi, R. maidis, Toxoptera graminum and Cavahyalopterus sp.) began building up on small grains in February; becoming very heavy during March to May. A light attack of GRAIN THRIPS (Limothrips cerealium) occurred at Collina Verde. First adults of DURRA STALK BORER (Sesamia cretica) were trapped in March. Observable damage to corn began in May. Control measures were limited and heavy damage occurred in most corn-growing areas.

On alfalfa, SPOTTED ALFALFA APHID (Therioaphis maculata) (Det. L. M. Russell) populations were extremely heavy in late spring and early summer. The first attack of BEET ARMYWORM (Spodoptera exigua) was observed in February. It caused appreciable damage in the Fezzan throughout the summer. The first observable damage by EGYPTIAN COTTONWORM (Prodenia litura) occurred in June. Populations increased substantially through successive generations. During November, bands of mature larvae leaving recently cut alfalfa entered houses and contaminated water supplies near Tripoli causing considerable alarm.

Fruit Insects: Due to unfavorable conditions for a buildup, the OLIVE FRUIT FLY (Dacus oleae) infestation was relatively light in 1960. The first punctures on table and Italian varieties of olives under irrigation occurred in late May. A light attack of local varieties occurred in September and October. No controls were required. A SCALE INSECT (Pollinia pollini) was present the year around on olives in the coastal areas but was of no importance in the hill country. Some control measures were undertaken to prevent leaf deformation and drop. In areas of heavy infestation, a black fungus also developed. OLEANDER SCALE (Aspidiotus hederae), BLACK SCALE (Saissetia oleae) and OLIVE SCALE (Parlatoria oleae) were of minor importance during 1960. A PYRALID (Palpita unionalis) was heavy on recently grafted nursery plantings. OLIVE PSYLLA (Euphyllura olivina) populations were light.

The MEDITERRANEAN FRUIT FLY (Ceratitis capitata) attack on citrus began in September on grapefruit and early orange varieties. Populations continued heavy into late November. All tangerines not treated were completely destroyed. Conditions were extremely favorable due to high temperatures in September, October and early November. Heavy infestations occurred in some areas where it is not normally expected in large populations. It was also heavy on apricots and early peach varieties along the coast during April and some varieties of pear during July. Attacks on persimmon and guava began in September. A BARK BEETLE (Scolytus amygdali) (Det. W. H. Anderson) was heavy on plum in Garian in February. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), BLACK PARLATORIA SCALE (Parlatoria zizyphus) and CHAFF SCALE (Parlatoria pergandii) occurred in many groves. PURPLE SCALE (Lepidosaphes beckii) was light on lemons and COTTONY-CUSHION SCALE (Icerya purchasi) appeared in large numbers on tangerines. Figs near Tripoli were infested with FIG WAX SCALE (Ceroplastes rusci). This scale insect also attacked plantings of the tropical fruit, Annona cherimola. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was heavy in some areas and BLACK CITRUS APHID (Toxoptera aurantii) was serious in citrus nursery plantings. ALMOND BUG (Monosteria unicostata) attacked pears in some areas.

Vegetable Insects: EGYPTIAN COTTONWORM attacked tomatoes in the Giado oases. It also damaged potato plants in some areas. BEET ARMYWORM was present on peas and beans. A NOCTUID (*Heliothis armigera*) was heavy on beans west of Tripoli and light infestations of BEAN BUTTERFLY (*Lampides boeticus*) were present at Zanzur. The CABBAGEWORM (*Pieris rapae*) was common on cabbage and another CABBAGEWORM (*Pieris brassicae*) was recorded on cabbage at Suk el Giuma. MELON APHID (*Aphis gossypii*) and STRAWBERRY SPIDER MITE (*Tetranychus atlanticus*) were common on melons and squash throughout the summer. CABBAGE APHID (*Brevicoryne brassicae*) (Det. L. M. Russell) was widespread on cabbage. SWEETPOTATO WHITEFLY (*Bemisia tabaci*) was prevalent on potatoes in Tripolitania. Some damage to potatoes by a HAWK MOTH (*Acherontia atropos*) occurred. TOMATO RUSSETT MITE (*Aculus lycopersici*) was heavy on tomatoes in Collina Verde in February, continuing through the summer. Heavy attacks on peppers by MEDITERRANEAN FRUIT FLY began in June and continued until late November. A heavy attack of a FLY (*Lamprolonchaea aurea*) occurred in conjunction with the Mediterranean fruit fly attack.

Other Field Crop Insects: A MOLE CRICKET (*Brachytrupes megacephalus*) was very serious and STRAWBERRY SPIDER MITE was numerous in some locations on peanuts. *Aphis* sp. was heavy on horse beans in February and tobacco was damaged by POTATO TUBERWORM (*Gnorimoschema operculella*). Some damage was caused by a TURNIP MOTH (*Euxoa segetum*) and APHIDS were heavy in some areas. SPINY BOLLWORM (*Earias insulana*) was collected from green bolls of perennial cotton plants at El Guea, Fezzan and okra at Bianchi, Tripolitania.

Stored-Product Insects: MEDITERRANEAN FLOUR MOTH (*Anagasta kuhniella*), GRANARY WEEVIL (*Sitophilus granarius*), RICE WEEVIL (*S. oryzae*), LESSER GRAIN BORER (*Rhyzopertha dominica*), CONFUSED FLOUR BEETLE (*Tribolium confusum*), RED FLOUR BEETLE (*T. castaneum*), YELLOW MEALWORM (*Tenebrio molitor*), CADELLE (*Tenebrioides mauritanicus*), SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) and BROAD-HORNED FLOUR BEETLE (*Gnathocerus cornutus*) were common in wheat and barley. CIGARETTE BEETLE (*Lasioderma serricorne*) attacked tobacco. Beans were damaged by BEAN WEEVIL (*Acanthoscelides obtectus*) and potatoes by POTATO TUBERWORM (*Gnorimoschema operculella*). INDIAN-MEAL MOTH (*Plodia interpunctella*) was common in peanuts, wheat and barley.

Forest Insects: CICADELLIDS (*Opsius stactogalus* and *Erythroneura tamaricis*) were heavy in tamerisk trees and a LYMANTRIID was heavy on *Acacia horrida* throughout Libya.

Beneficial Insects: A TACHINID (*Zygobothria atropivora*) caused heavy parasitism of *Acherontia atropos*. A PTEROMALID (*Lariophagus distinguendus*) and A BETHYLID (*Rhabdepyris zeae*) reduced populations of *Sitophilus* spp. in stored grain. COTTONY-CUSHION SCALE was effectively controlled by VEDALIA (*Rodolia cardinalis*). A COCCINELLID (*Chilocorus bipustulatus*) (Det. E. A. Chapin) was found in heavy numbers at Collina Verde feeding on *Chrysomphalus dictyospermi*. BRACONIDS - *Apanteles glomeratus* was observed attacking larvae of *Pieris rapae* and *Diaeretus rapae* heavily parasitized *Brevicoryne brassicae*. A PTEROMALID (*Scutellista cyanea*) effectively controlled *Ceroplastes rusci* and *Saissetia oleae* in some areas. A COCCINELLID (*Coccinella septempunctata*) and SYRPHIDS (*Sphaerophoria ruppelli* and *Ephistrophe balteatus*) reduced aphid populations in small grains. A HYPERPARASITE (*Diplazon laetatorius*) was present, attacking *Ephistrophe balteatus* eggs and larvae. PTEROMALIDS (*Cheiropachus colon* and *Rhaphitelus maculatus*) were observed on peach and plum trees attacked by a scolytid. COCCINELLIDS (*Adonia variegata* and *Exochomus* sp.) attacked the cicadellids, *Opsius stactogalus* and *Erythroneura tamaricis*, in forest plantings.

Summary of Insect Conditions in the Republic of the Sudan

Prepared by A. Kaatz in cooperation with
Sayed Beshir, B. El Shafie, Sayed Lloyd
George, Sayed Gaafar Yahia and other members
of the Crop Protection Division, Department
of Agriculture, Ministry of Agriculture.

DESERT LOCUST (Schistocerca gregaria) invasions were comparatively light in 1960 due to the lack of rainfall in the summer breeding range and late, light rains in the winter breeding range. The summer invasion started with a few flying swarms in May, more in June, less in July and increased in August, characterized by extensive movement. Only 66 flying swarms were reported in this period compared with almost 600 flying swarms during the same period in 1959. The heaviest swarm movement was in September; tapering off in October. Egg laying started in August in Kassala Province and during September in the Blue Nile and Kordofan Provinces, with more egg laying occurring in the Blue Nile in October. Hoppers hatched only in Kordofan, Blue Nile and Kassala Provinces, with one small hopper band being present in Khartoum Province during October. The summer locust control season was completed by November 15. No damage to crops was reported. In the winter range, the season started in November when two flying swarms were reported at Tokar Delta. During December, a total of 102 swarm movements were recorded (not swarms, as many were seen at two or three different locations due to extensive movements). Of these movements, 50 were mature swarms, about 15 were immature and about 37 were mixed. Thirty-one oviposition sites were reported and 7 sites where hoppers had hatched were observed. By the end of December, all locusts had moved up to the north of Tokar in the Red Sea Hills. Swarms varied in size and density and movements were very extensive. The largest swarm reported was approximately 9 by 5 kilometers. At the end of December, 17 actual swarms had been successfully controlled; and, although new swarms were appearing from the south and southeast, locust crews had the situation under control.

A TREE LOCUST (Anacridium moestum) was present in large numbers from January through March in Kordofan Province. A total of 398 swarms of varying sizes was controlled by spraying gum arabic and other trees. A few swarms were found along the Blue and White Nile Rivers below Khartoum. Swarms appeared again in December near Um Indraba where trees were still green; control operations underway.
A MIGRATORY LOCUST (Locusta migratoria migratorioides) and SUDAN PLAGUE GRASSHOPPER (Aiolopus savignyi) were not reported in 1960.

Cotton Insects: COTTON JASSID (Empoasca lybica) was again the most serious cotton insect, especially in the Gizera where much of the current crop was heavily attacked. Early controls were not very effective. Lesser damage occurred in the Blue and White Nile River areas. The Gash River area was not affected. Approximately 500,000 acres of cotton were treated for control of this pest. Attacks were later in the season than usual. SWEETPOTATO WHITEFLY (Bemisia tabaci) ranked as the second most important pest of cotton, and various fields over the whole Blue and White Nile River schemes were affected. COTTON APHID (Aphis gossypii) was present in the southern Blue Nile River area and along the White Nile River, but was serious only in a few schemes, mostly along the White Nile River. A COTTON THRIPS (Hercothrips fumipennis) was present early in the season in southern Gizera and successfully controlled by spraying in September. It was also present at Semeih and controlled by spraying. Also found this year in cotton at Semeih during October and November was a WEEVIL (Tanymecus sparsus). Approximately 1,000 acres were sprayed for this pest. A FLEA BEETLE (Podagrica puncticollis) was very numerous in southern regions. It was controlled in southern Gizera, and no serious damage was reported. A COTTON STAINER (Dysdercus sp.) is most harmful to cotton in Equatoria Province and the Nuba Mountains region. Regular treatment programs are carried out in the Nuba Mountains during the dry season when the insect rests in trees. Controls were effective in 1960.

A BOLLWORM (*Heliothis armigera*) and EGYPTIAN BOLLWORM (*Earias insulana*) were found in most of the cotton area but no major damage occurred except in a few fields in the southern Blue Nile River area and in Equatoria Province. A RED BOLLWORM (*Diparopsis watersi*) was found in the Gash River area and in the Nuba Mountains region. It was present in large numbers in the Gash River area, but controlled. PINK BOLLWORM (*Pectinophora gossypiella*) damage occurred only in Equatoria Province. Most of the 4 bollworms reported in this summary are controlled each year by compulsory cultural preventive measures. EGYPTIAN COTTONWORM (*Prodenia litura*) was present on late cotton during the cool months. Damage was slight. COTTONSEED BUG (*Oxycarenus hyalinipennis*) was present in all cotton fields along the east bank of the White Nile River in Equatoria Province. SOIL TERMITES were present in most cotton-growing areas; but, damage was not particularly noticeable due to planting of about 12 seeds to a hill, which are thinned to 3 per hill after emergence. A MIRID (*Creontiades palidus*) was present on cotton in the Tokar Delta only; slight damage occurred in 1960.

Forage and Crop Insects: DURRA STALK BORER (*Sesamia cretica*) was present in all durra fields in the northern area and to a lesser degree farther south. Heavy infestations and damage were reported in sugarcane adjacent to durra fields at the Guneid scheme in February. Two parasites, *Anacamptoneurum obliquum* and *Coenosia* sp., parasitized approximately 8 percent of the *S. cretica* larvae in February. DURRA APHID (*Aphis sorghi*) infestations were light in the Fung, Sennar, Kosti and Managil areas. It was also common in Equatoria Province. SORGHUM MIDGE (*Contarinia sorghicola*) was a minor pest in 1960. A PENTATOMID (*Agonoscelis pubescens*) was present in Kassala, Sennar and Singha on durra where a regular dry season control campaign was carried out. Only slight damage was reported. A SHOOT FLY (*Atherigona indica*) was found in thick durra stands in late-sown fields along the Blue Nile River in southeastern regions. A CASTORBEAN CATERPILLAR (*Achaea catella*) caused slight damage to castorbeans in the Gash River area. Also found in castorbean fields where SPIDER MITES, a PHYCITID larva, a LEAF ROLLER larva and several unidentified CATERPILLARS, none of which were serious. It was interesting that more insects were attracted to castorbeans in 1960 than previously. The crop has been grown commercially for only two seasons, however. EGYPTIAN COTTONWORM also destroyed several fields of broadbeans in the northern regions before being reported and brought under control. This species is a serious pest of late-season crops in the Northern Province. BEET ARMYWORM (*Spodoptera exigua*) damaged fields of chickpeas in eastern Blue Nile Province during late February before being controlled by spraying over 600 acres.

Citrus and Other Fruit Insects: A FRUIT FLY (*Pardalaspis* sp.) has been most serious in guava and citrus in all of the northern area. Most of the guava fruit was attacked along with grapefruit and some oranges from September through December. The attacks are similar to those of MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*). A SCARABAEID (*Pachnoda* sp.) caused damage to mango flowers during December in the Northern Province. The seriousness of the infestation has not yet been determined. BROWN SOFT SCALE (*Coccus hesperidum*) was very common on citrus in Equatoria Province. STRIPED MEALYBUG (*Ferrisia virgata*) was found on guava, and light attacks of a MEALYBUG (*Phenacoccus hirsutus*) occurred on citrus. Another MEALYBUG (*Pseudococcus* sp.) was reported found in most pineapple fields. A heavy infestation of PARLATORIA DATE SCALE (*Parlatoria blanchardi*) occurred in date palms at Merowe; over 3,500 palms were treated. TERMITES have attacked about 60,000 date palms in the Dongola area in Northern Province; 30 percent seriously attacked.

Coffee Insects: COFFEE BERRY BORER (*Stephanoderes hampei*) was reported to be widespread, although attacks were variable in the different plantations. MEALYBUGS (*Planococcus citri* and *Ferrisia virgata*) attacks were common, but light. GREEN SCALE (*Coccus viridis*) was reported present in large numbers. Also reported present were the following SCALE INSECTS: *Ceroplastes* sp., *Pulvinaria* sp., *Saissetia* sp. and *Pseudaonidia* sp.

Vegetable and Garden Insects: TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) attacks were common on all watermelon and cucurbit plantings. A LACE BUG (Urentius echinus) was present on most eggplants in the Northern Province. BLISTER BEETLES attacked bean crops in areas of the Nuba Mountains. A TOMATO FRUITWORM (Heliothis sp.) attacked tomatoes in Khartoum Province. A FRUIT FLY (Dacus sp.) caused serious damage to melon fruit and other cucurbits in Khartoum and Kordofan Provinces. No controls have been used in Kordofan Province, with the result that in certain areas of this Province it has been almost impossible to grow melons commercially. A PENTATOMID has been damaging cucurbits and tomato plants at Bara. LEAFHOPPERS, WHITEFLIES, THRIPS and APHIDS were common. SPIDER MITES were also serious pests of watermelons, figs, citrus, rosebushes and other ornamentals.

Stored-Product Insects: The KHAPRA BEETLE (Trogoderma granarium) infestation has continued to spread and is now found in most areas from Wadi Halfa in the north to Juba in the south in addition to Port Sudan areas. RICE WEEVIL (Sitophilus oryzae) was common in all stored grain and cereals, especially in stores near the places where grains are grown. LESSER GRAIN BORER (Rhyzopertha dominica) was common in all dry places. CONFUSED FLOUR BEETLE (Tribolium confusum) and RED FLOUR BEETLE (T. castaneum) were found in large numbers and remained a serious problem. RICE MOTH (Corcyra cephalonica) and ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) were next in importance, being present and common in many regions. Also present and common, but of less importance, were a TENEBRIONID (Latheticus oryzae), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and CADELLE (Tenebroides mauritanicus). Many other insect pests were found from time to time, but they were of only local importance.

Summary of Insect Conditions in Ethiopia

Prepared by W. C. Kurtz

Cereal and Forage Insects: During the summer season, the DESERT LOCUST (Schistocerca gregaria) infestation was reported to be the heaviest in 20 years in Tigre Province, particularly in the Tacazzie Valley. Damage was generally light due to the lateness of the season and maturity of crops at the time of fledging. The infestation was light in southern Ogaden, and hopper bands were reported all controlled during the later summer campaign. An ARMYWORM caused widespread damage on teff (Eragrostis abyssinica), corn and sorghum. CORN LEAF APHID (Rhopalosiphum maidis)* occurred on Kulbe dwarf sorghum and another APHID (Aphis craccivora)* was found on alfalfa, both at Alemaya.

Fruit and Nut Insects: BROWN SOFT SCALE (Coccus hesperidum)* and FLORIDA RED SCALE (Chrysomphalus aonidum)* were common on citrus. COTTONY-CUSHION SCALE (Icerya purchasi) was common on citrus and ornamentals. An ORANGE DOG (Papilio dardanus) caused considerable damage to young citrus at Debre Zeit.

Truck Crop Insects: APHIDS were common on truck crops at Alemaya as follows: Aphis craccivora* attacked black-eyed peas, Anuraphis foeniculus* occurred on celery, and MELON APHID (Aphis gossypii)* was found on cantaloups. A CHRYSOMELID (probably Nisotra sp.)* was found on okra and hollyhock and a COCCINELLID attacked cantaloups at Alemaya. Several destructive, as well as beneficial insects, were found on artichoke at Alemaya. These included a SAWFLY (Athalia vollenhoveni)*, a CRICKET (Acheta sp.)*, a TENEBRIONID (Gonocephalum sp.)* and two species of LADY BEETLES (Cheilomenes sulphurea* and Cydonia lunata*). A CHRYSOMELID (Aspidomorpha sp.)* and a NITIDULID (Pria sp.)* were found on Solanum incanum and a SPRINGTAIL (Entomobrya purpurascens)* was found on cabbage at Alemaya. A MELYRID (Melyris sp.) was found on watermelon at Nazareth.

Stored-Product Insects: GRANARY WEEVIL (Sitophilus granarius)* and RICE WEEVIL (S. oryzae)* were quite common in stored barley and wheat at several locations; an ALMOND MOTH (Ephestia cautella)*, MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella), INDIAN-MEAL MOTH (Plodia interpunctella)*, RED FLOUR BEETLE (Tribolium castaneum)* and CONFUSED FLOUR BEETLE (T. confusum) were also commonly found in stored grains. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella)* was found in barley at Wolenchitti.

Insects Affecting Man and Animals: Three species of TABANIDS (Chrysops streptobalius, Chrysozona abyssinica and Chrysozona sp.)* were found at Dembidolla by the USOM veterinarian and were reported severely biting people.

Miscellaneous Insects: A PHYCITID occurred on Arabiantea (Catha edulis), a low-growing shrub cultivated for its narcotic effect when the green leaves are chewed. A CHRYSOMELID (Crioceris sp.)* was found on wild asparagus at Alemaya.

Note: Species marked with an asterisk(*) were identified by Federal taxonomists at the U. S. National Museum in Washington, D. C., during 1960.

Summary of Insect Conditions in Iran

Prepared by R. L. Linkfield

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) infestations were reported from seven provinces during 1960. Baluchestan in the southeastern area first reported swarms coming from Pakistan, which eventually spread out to south Khorasan and Fars. Only several swarms were reported from Iraq and these were controlled. In intensive control operations, 1,532,497 acres were reported treated, with crop loss held to a minimum. MOROCCAN LOCUST (Dociostaurus moroccanus) infestations were heavy in the Mogan Plains area in the northwest section and in the Saraks area in the northeast section of the country. Control operations were very successful in the Gorgan and Saraks areas. A total of 1,054,252 acres was reported controlled in Iran. NATIVE GRASSHOPPERS (Calliptamus spp. and Dociostaurus spp.) were generally distributed throughout the country. An aggregate total of 257,307 acres was reported to have been treated.

SENN PEST (Eurygaster integriceps) infestations were very heavy in Kermanshah and Tehran Provinces. Due to erratic weather conditions in the early part of the year, the pest did not migrate to the fields until most of the wheat plants were fairly old. Little damage occurred. Surveys have shown populations to be high in the hibernating areas, however, and infestations in 1961 could be very serious throughout these areas. The total acreage reported controlled was 88,112. DURRA STALK BORER (Sesamia cretica) is still the most important pest of sugarcane in Khuzistan and corn and grain sorghum in other areas of the country. ALFALFA WEEVIL (Hypera postica) destroyed the first cutting of alfalfa in one field at Haydarabad and was the most serious pest of alfalfa throughout Iran, generally. CORN LEAF APHID (Rhopalosiphum maidis) was very heavy on corn in the Caspian Sea area, and STRAWBERRY SPIDER MITE (Tetranychus atlanticus) (Det. E. W. Baker) infested sweetclover in the Ahwaz area of Khuzistan. A MARGARODID, tentatively identified as Porphyrophora tritici by H. Morrison, caused severe damage to a wheatfield at the village of Amireyeh, 74 km. north of Hamadan. An APHID was found infesting wheat roots at the same location.

Truck Crop Insects: CABBAGE APHID (Brevicoryne brassicae) caused heavy damage to cabbage throughout the country. An ONION MAGGOT (Hylemya sp., near antigua) (Det. R. H. Foote) caused medium damage to a planting of young garlic in the Hamadan area. A PENTATOMID (Carpocoris pudicus) (Det. P. D. Ashlock) caused medium damage to the florescence of a species of Umbelliferae, used as a soup seasoning, in the Ramsar area. BEET ARMYWORM (Spodoptera exigua) infestations in sugar beets were very low throughout the country compared with 1959. This was most likely due to the erratic spring weather. Damage by a SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) was not severe although it was present throughout the country.

Deciduous Fruit Insects: BLACK SCALE (Saissetia oleae) was still the most important insect found on olive trees in the Rudbar area. An OLIVE PSYLLID (Euphyllura olivina) (Det. L. M. Russell) caused some damage to olive trees in scattered areas of Rudbar. ALMOND NUT BORER (Eurytoma amygdali) (Det. B. D. Burks) overwintering pupae light to medium in Ghazvin area. ERMINE MOTH (Hyponomeuta padella)(Det. H. W. Capps) larvae were very heavy on cherry, apple and almond trees in the Hamadan area. APHIDS causing damage were as follows: Pterochlorus persicae heavily damaged apricot and peach trees in Hamadan and Semnan, while Hyalopterus pruni severely infested young almond trees in Semnan. Anuraphis sp. caused severe leaf curl to peach trees in Damavand, Semnan and Hamadan, and A. rosea caused severe leaf curl of apple at the Varamin Experiment Station. Infestations of A. helichrysi were medium on Prunus sp. in the Hamadan area. (Above-mentioned aphids all determined by L. M. Russell). A FRUIT TREE MITE (Bryobia rubrioculus) (Det. E. W. Baker) infested apple leaves at Damavand and cherry leaves at Hamadan. Another MITE (Neotetranychus sp.) (Det. E. W. Baker) was very heavy on fig leaves in Tehran.

Citrus Insects: A MITE (Eutetranychus orientalis) (Det. E. W. Baker) was found on citrus in Khuzistan and Fars Provinces in southern Iran. CITRUS RUST MITE (Phyllocoptruta oleivora) severely damaged citrus in the Caspian Sea area where control was not properly applied. COTTONY-CUSHION SCALE (Icerya purchasi) infestations were heavy in limited parts of the citrus area of the Caspian. PURPLE SCALE (Lepidosaphes beckii), CHAFF SCALE (Parlatoria pergandii) and BLACK PARLATORIA SCALE (Parlatoria zizyphus) were of major economic importance throughout the citrus-growing areas of the Caspian.

Forest, Ornamental and Shade Tree Insects: A CHRYSOMELID (Chrysomela populi) (Det. D. M Weisman) damaged poplar leaves in Tehran Ostan. LACE BUGS (Stephanitis pyri)infested Chaenomeles japonica at Chaluse and (Monosteira unicostata) infested Populus hybrida at Nowshahr on the Caspian Sea. (Both Det. C. J. Drake). Two aphids, determined by L. M. Russell, are Myzus certus which caused severe leaf curl to pansy plantings in Tehran, and Lachnus salignus which caused medium damage to willow plantings in the Rezaiyeh area of Azarbaijan. WHITEFLIES causing damage were as follows: Siphoninus granati which was very heavy on ash trees in Tehran; Bemisia sp. and Aleurotrachelus alhagi which were present on Zizyphus sp. in Ahwaz area. (Above whiteflies all det. L. M. Russell). BLACK-HEADED FIREWORM (Rhopobota naevana) (Det. H. W. Capps) infested wild holly in forests west of Pahlavi. A CHRYSOMELID (Zeugophora flavicollis) (Det. D. M. Weisman) caused some damage to leaves of Populus nigra in the Karaj area. A BUPRESTID (Det. D. M. Weisman) infested Populus nigra at Borujerd.

Insects Affecting Man and Animals: A TICK (Hyalomma anatolicum anatolicum) (Det. C. M. Clifford) was found on a yearling heifer at Mashad. NORTHERN CATTLE GRUB (Hypoderma bovis) (Det. C. W. Sabrosky) was present on young cows in the Tehran area.

Beneficial Insects: About 52,000,000 SENN PEST PARASITES (*Microphanurus semistriatus*) were reared and released in senn pest-infested fields of Isfahan. VEDALIA (*Rodolia cardinalis*) was still distributed to areas in the Caspian where cottony-cushion scale was present. AN ENCYRTID (*Aphycus helvolus*) was brought to Iran from California and released at Ramsar and Rudbar for control of *Saissetia oleae*. A survey, two months after release in the Ramsar area, revealed that these parasites seem to have become established. Another survey during the spring will be made to determine the overwintering survival rate. Some adults of *A. stanleyi* and *A. lounsburyi* were field released at Rudbar but it is not known yet if they have established themselves. AN EULOPHID (*Solenotus* sp.) (Det. B. D. Burks) was reared from CEREAL LEAF MINER (*Syringopais temperatella*). A MITE (*Leptus* sp.) (Det. E. W. Baker) was found on *Myzus persicae*.

Summary of Insect Conditions in Afghanistan

Prepared by E. R. Millet

Cereal and Forage Insects: APHIDS were reported on alfalfa in the Helmand Valley. SENN PEST (*Eurygaster integriceps*), in the mountainous northern provinces, was estimated to have caused damage up to 35 percent. GRASSHOPPERS were heavy on wheat in the Helmand Valley. A SUGARCANE BORER (*Argyria sticticraspis*) showed 10-15 percent infestation in the Jallabad area. Another BORER, identified locally as *Emmalocera depressella*, also was reported in sugarcane in this area.

Locusts: DESERT LOCUST (*Schistocerca gregaria*) occurred in yellow swarms in the Helmand Valley at Kandahar, Laskar-Gah, Marja and Darweshan. Oviposition was heavy and control was applied after hatching. Swarms, though not serious, were found in the Herat area. ITALIAN LOCUST (*Calliptamus italicus*) and MOROCCAN LOCUST (*Dociostaurus moroccanus*) were both serious in the desert area of the northern provinces along the Soviet frontier.

Fruit Insects: CODLING MOTH (*Carpocapsa pomonella*) was severe in the Kabul area. A TENT CATERPILLAR (*Malacosoma* sp.) and an ERMINE MOTH (*Hyponomeuta* sp.) were estimated to have caused 20-25 percent damage in the Kandahar and Ghazni sections. They also occurred on almonds, and fruits such as apples and plums in Herat and other fruit-growing areas. A SCALE INSECT (probably *Lecanium kosswigi*) was minor this year on almonds, peaches and plums. BARK BEETLES were minor on apples and apricots in the Helmand Valley.

Citrus Insects: Citrus occurs only in the Jallabad area and the most serious insects were a WHITEFLY (*Dialeurodes* sp.), CALIFORNIA RED SCALE (*Aonidiella aurantii*) and *Saissetia* sp.

Truck Crop Insects: APHIDS were heavy on cabbage, broccoli and cauliflower in the Helmand Valley. GRASSHOPPERS, involving 8-12 species and particularly a species which was probably Chrotogonus sp., heavily damaged gardens, vegetables and wheat in the same area. BEETLES (probably *Epilachna chrysomelina*) occurred on melons around Herat. A MOLE CRICKET (*Gryllotalpa* sp.) was severe at Marja and Nadi Ali in the Helmand Valley. A CUTWORM (*Agrotis* sp.) was found in gardens at Darweshan in the Helmand Valley and on sugar beets in a northern province.

Cotton Insects: COTTON APHID (*Aphis gossypii*) was especially heavy on cotton in the north. SPINY BOLLWORM (*Earias insulana*) lightly infested cotton in the Jallabad area; and 2-7 percent infestation was found in the Helmand Valley. THRIPS and SPIDER MITES occurred on cotton in this Valley, and PINK BOLLWORM (*Pectinophora gossypiella*) was reported again this year on cotton in the Jallabad area. A CUTWORM (*Agrotis* sp.) was found on cotton in a northern province.

Forest Insects: APHIDS were heavy on new pine shoots in the Helmand Valley and occurred on Russianolive and silver poplar which are used for windbreaks. A FLATHEADED BORER (*Chrysobothris* sp.) and LONG-HORNED BEETLES considerably damaged poplar in the same Valley.

Miscellaneous Insects: TERMITES were severe at Marja and Nadi Ali and also found in cardboard containers of hospital supplies at the warehouse in Lashkar-Gah. MITES occurred on sheep and camels in the Helmand Valley and TICKS were found on sheep.

Note: As the writer was in Afghanistan only the last two months of 1960, this report is based on information obtained from Afghan Plant Protection officials.

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